

What is claimed is:

1. A package of collated nails suitable for pallet wooden board securement comprising:

a plurality of nails suitable for pallet securement, each nail having:

a substantially round head having a flat top surface suitable for being driven into a flush relationship with an exterior surface of a pallet wooden board and a bottom surface, the head further having a head diameter, the head diameter providing an enlarged bottom head surface area for engaging the exterior surface of the pallet wooden board to enhance resistance to pallet wooden board separation by head pull through;

a single elongate shank integral with the head and extending from the head bottom surface, the elongate shank further including a point opposite the head, and a plurality of surface deformations formed on the shank, the surface deformations being configured to provide an enhanced resistance to pallet wooden board separation by withdrawal of the nail shank from a pallet wooden board, the shank further having a substantially round cross-section having a shank diameter between .078 in. and .085 in.;

wherein:

each nail is manufactured from steel wire;

each nail has a length defining the distance from the head to the shank point, the length being between 1.50 inches and 2.25 inches; and

the ratio of the head diameter to shank diameter of each nail is between 2.70 and 3.37; and

attachment structure constructed and arranged to temporarily attach the plurality of nails into a package in which the nails are in collated relation.

2. The package of collated nails of claim 1, wherein the collated relation is a parallel substantially longitudinally coextensive relation.

3. The package of collated nails of claim 2, wherein the collated relation further includes a coil formation.

4. The package of collated nails of claim 3, wherein the attachment structure comprises a pair of parallel frangible wires welded to the shank of each nail of the package.

5. The package of collated nails of claim 1, wherein the surface deformations of each nail comprise a plurality of spiral flutes extending radially outwardly from the shank.

6. The package of collated nails of claim 5, wherein the plurality of flutes includes four equally spaced flutes, each having a spiral configuration which extends approximately once around the shank of each nail.

7. The package of collated nails of claim 6, wherein the head of each nail is circular.

8. The package of collated nails of claim 7, wherein the shank of each nail has a circular cross-section.

9. The package of collated nails of claim 1, wherein the surface deformations of each nail comprise a plurality of rings extending radially outwardly from the shank.

10. The package of collated nails of claim 1, wherein the ratio of head diameter to shaft diameter is approximated 2.75 to 2.95.

11. The package of collated nails of claim 10, wherein the shaft diameter is approximately .083 in., the head diameter is approximately .238 in., and the ratio of head diameter to shaft diameter is approximately 2.87.

12. The package of collated nails of claim 10, wherein the length of each nail is one of the following dimensions: 1.50 in., 1.75 in., 2 in., or 2¼ in.

13. A pallet comprising:

a plurality of spaced bottom wooden boards having parallel top and bottom larger flat surfaces, the bottom flat surface of which is positioned to be in horizontal surface engaging orientation when said pallet is supported on a horizontal surface,

a plurality of spaced middle wooden boards having parallel upper and lower smaller end surfaces, the lower end surface of which is disposed in engaged relation to the top larger flat surface of said bottom boards, and

a plurality of top wooden boards having parallel top and bottom larger flat surfaces, the bottom surface of which is disposed in engagement with the upper end surface of said middle

boards, and at least a pair of spaced nails extending through each bottom and top board and into said middle board at the position of engagement of each bottom and top board with said middle board,

each of said nails having:

a substantially round head having a flat top surface suitable for being driven into a flush relationship with an exterior surface of a pallet wooden board and a bottom surface, the head further having a head diameter, the head diameter providing an enlarged bottom head surface area for engaging the bottom flat surface of the bottom wooden boards or the top flat surface of the top wooden boards to enhance resistance to pallet wooden board separation by head pull through;

a single elongate shank integral with the head and extending from the head bottom surface, the elongate shank further including a point opposite the head, and a plurality of surface deformations formed on the shank, the surface deformations being configured to provide an enhanced resistance to pallet wooden board separation by withdrawal of the nail shank from a pallet wooden board, the shank further having a substantially round cross-section having a shank diameter between .078 in. and .085 in.;

wherein:

each nail is manufactured from steel wire;

each nail has a length defining the distance from the head to the shank point, the length being between 1.50 inches and 2.25 inches; and

the ratio of the head diameter to shank diameter of each nail is between 2.70 and 3.37.

14. The pallet as defined in claim 13, wherein a bottom portion of each middle board has recesses at positions between bottom boards configured to receive the forks of the fork lift truck.

15. The pallet as defined in claim 13, wherein the surface deformations of each nail comprise a plurality of spiral flutes extending radially outwardly from the shank.

16. The pallet as defined in claim 15, wherein the plurality of flutes includes four equally spaced flutes, each having a spiral configuration which extends approximately once around the shank of each nail.

17. The pallet as defined in claim 13, wherein the surface deformations of each nail comprise a plurality of rings extending radially outwardly from the shank.

18. The pallet as defined in claim 13, wherein the ratio is between approximately 2.75 and 2.95.

19. The pallet as defined in claim 18, wherein the shaft diameter is approximately .083 in., the head diameter is approximately .238 in., and the ratio of head diameter to shaft diameter is approximately 2.87.

20. The pallet as defined in claim 18, wherein the length of each nail is one of the following dimensions: 1.50 in., 1.75 in., 2 in., or 2¼ in.

21. A nail suitable for pallet wooden board securement having:
a substantially round head having a flat top surface suitable for being driven into a flush relationship with an exterior surface of a pallet wooden board and a bottom surface, the head further having a head diameter, the head diameter providing an enlarged bottom head surface area for engaging the exterior surface of a pallet wooden board to enhance resistance to pallet wooden board separation by head pull through;

a single elongate shank integral with the head and extending from the head bottom surface, the elongate shank further including a point opposite the head, and a plurality of surface deformations formed on the shank, the surface deformations being configured to provide an enhanced resistance to pallet wooden board separation by withdrawal of the nail shank from a pallet wooden board, the shank further having a substantially round cross-section having a shank diameter between .078 in. and .085 in.;

wherein:

each nail is manufactured from steel wire;

each nail has a length defining the distance from the head to the shank point, the length being between 1.50 inches and 2.25 inches; and

the ratio of the head diameter to shank diameter of each nail is between 2.70 and 3.37; and

attachment structure constructed and arranged to temporarily attach the plurality of nails into a package in which the nails are in collated relation.

22. The nail as defined in claim 21, wherein the surface deformations of each nail comprise a plurality of spiral flutes extending radially outwardly from the shank.

23. The nail as defined in claim 22, wherein the plurality of flutes includes four equally spaced flutes, each having a spiral configuration which extends approximately once around the shank of each nail.

24. The nail as defined in claim 21, wherein the surface deformations of each nail comprise a plurality of rings extending radially outwardly from the shank.

25. The nail as defined in claim 21, wherein the ratio is between approximately 2.75 and 2.95.

26. The nail as defined in claim 25, wherein the shaft diameter is approximately .083 in., the head diameter is approximately .238 in., and the ratio of head diameter to shaft diameter is approximately 2.87.

27. The nail as defined in claim 25, wherein the length of each nail is one of the following dimensions: 1.50 in., 1.75 in., 2 in., or 2¼ in.

28. In a method of making a pallet which comprises: providing a plurality of spaced bottom wooden boards having parallel top and bottom larger flat surfaces, the bottom flat surface of which is positioned to be in horizontal surface engaging orientation when said pallet is supported on a horizontal surface,

a plurality of spaced middle wooden boards having parallel upper and lower smaller end surfaces, the lower end surface of which is disposed in engaged relation to the top larger flat surface of said bottom boards, and

a plurality of top wooden boards having parallel top and bottom larger flat surfaces, the bottom surface of which is disposed in engagement with the upper end surface of said middle boards, and driving at least a pair of spaced nails through each bottom and top board and into the middle board at a position of engagement of each bottom and top board with said middle board, the improvement which comprises:

utilizing nails having:

a substantially round head having a flat top surface suitable for being driven into a flush relationship with an exterior surface of a pallet wooden board and a bottom surface, the head further having a head diameter, the head diameter providing an enlarged bottom head surface area for engaging a bottom flat surface of a bottom wooden board or a top flat surface of a top wooden board to enhance resistance to pallet wooden board separation by head pull through;

a single elongate shank integral with the head and extending from the head bottom surface, the elongate shank further including a point opposite the head, and a plurality of surface deformations formed on the shank, the surface deformations being configured to provide an enhanced resistance to pallet wooden board separation by withdrawal of the nail shank from a pallet wooden board, the shank further having a substantially round cross-section having a shank diameter between .078 in. and .085 in.;

wherein:

each nail is manufactured from steel wire;

each nail has a length defining the distance from the head to the shank point, the length being between 1.50 inches and 2.25 inches; and

the ratio of the head diameter to shank diameter of each nail is between 2.70 and 3.37; and

attachment structure constructed and arranged to temporarily attach the plurality of nails into a package in which the nails are in collated relation.

29. The method of claim 28, wherein said nails are driven from a package of nails collated in parallel substantially longitudinally coextensive relation by a pair of wires welded to the shanks of said nails.